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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,585	02/23/2004	Michael Long	87181RLO	9644

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EXAMINER	
ABRAMOWITZ, HOWARD E	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/784,585	LONG ET AL.	
	Examiner	Art Unit	
	Howard E. Abramowitz	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3, 5-12, 14-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 5-12, 14-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendments filed 4/11/06, have been fully considered and reviewed by the examiner. The examiner notes that claims 6 and 15 have been amended. Currently claims 1-3, 5-12 and 14-16 are pending in this application.

Response to Arguments

Applicant's arguments filed 4/11/06 have been fully considered but they are not persuasive.

The applicant has argued that the 112 2nd paragraph rejection of the word steep is inappropriate and that the word is adequately defined by the specification.

The examiner disagrees with the assertion that the term steep is defined by the specification. One example and a statement that "this gradient protects all but the immediately vaporizing material from the high temperature" does not amount to a definition of the term steep. One of ordinary skill would still find the term steep to be relative as no definition is clearly stated for the term and while for some applications steep may be 200 °C/mm in other applications the term could be used to define only a few degrees per mm or in other applications it could be thousands of degrees per mm. Accordingly, it would not have been obvious to one of ordinary skill what is meant by a steep thermal gradient.

Applicant's arguments with respect to claims 1-3, 5-12 and 14-16 have been considered but are moot in view of the new ground(s) of rejection. The previous

grounds of rejection have been considered and the examiner agrees with the applicant's assertion that moving the heater relative to the organic material does not constitute metering of the organic material.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 – 3, 5 – 12, and 14 – 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "steep" in independent **Claim 1** (from which **Claims 2, 3, and 5 – 9** depend) and independent **Claim 10** (from which **Claims 11, 12, and 14 – 16** depend) is a relative term which renders the claims indefinite. The term "steep" is not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, the claims of the instant application now require that there be a "steep thermal gradient" across the thickness of the organic material between the first and second regions. However, it is unclear how quickly the temperature must change between the regions to constitute a "steep" thermal gradient in the context of the claimed invention. As such, the scope of the claims is unclear.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 05117864 ('864).

Referring to claim 1, '864 discloses providing a quantity of solid organic material into a vaporization apparatus, actively cooling the solid organic material in a first region in the vaporization apparatus, heating a second region of the vaporization apparatus above the vaporization temperature of the solid organic material so that there is thermal gradient across the thickness of the organic material between the first and second regions, and metering at a controlled rate solid organic material from the first region into the second region (figure, abstract, paragraphs 3, 8, 9, 15 and 16).

Referring to claim 2, the gas passes through a pipe which has a hole thus it is a permeable member (figure).

Referring to claim 3, a deposition chamber is provided (figure, paragraph 19), the container (1) for holding the raw material which is to be vaporized is heated only during deposition thus minimizing contamination and conserving the solid organic material when the reactor is not in operation (paragraph 16).

Referring to claim 5, material is constantly provided to the 1st vessel from the second vessel, and the shape of the material is in a plume as the material in the pipe leading to the first vessel and the material in the first vessel result in a plume shape (figure, paragraph 16).

Referring to claim 6, the first region is maintained at a constant temperature by cooling as the solid organic material is consumed (paragraph 15).

Referring to claim 7, the second region is maintained at a constant heater temperature as the solid organic material is consumed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over '864 in view of Grant et al. (US 2003/0116091 A1).

The '864 reference teaches all the limitations of **Claim 8** as set forth, except for a method further comprising providing the claimed cooling base block (i.e., with a liquid between the cooling base block and the solid organic material to provide thermal contact and a vapor tight seal) surrounding the solid organic material. Specifically, '864 does not teach how the material in the first container is cooled. However, Grant et al. teaches that a liquid cooling jacket in which liquid is circulated through the jacket and around the vaporization source (i.e., between the cooling base block and the vaporization source material) is effective in cooling a vaporization source material (paragraphs [0011], [0036], and [0037). Therefore, it would have been obvious to one of ordinary skill in the art to cool the container of '864, as taught by Grant et al. with the reasonable expectation of success and obtaining similar results (i.e., successfully cooling the container, regardless of whether cooling lines or a cooling base block surrounding the crucible is utilized as the cooling means).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over '864 in view of Peng (USPN 6,467,427).

The '864 reference teaches all the limitations of **Claim 9** as set forth above in paragraph 14, except for a method wherein the solid organic material is metered on the surface of a rotatable drum. Peng teaches that supplying a solid evaporation source

material into a crucible by using a rotating cylindrical wheel (i.e., a "rotatable drum") has the advantages of (1) providing a continuous supply of evaporation source material so that the evaporation chamber can perform vapor deposition for a long period, (2) providing a fixed quantity of source material at a fixed interval of time, and (3) never having to stop to reload the source material, thereby increasing productivity (Figures 2B and 2C; Col.3, line 1 – Col.4, line 4). Therefore, it would have been obvious to one of ordinary skill in the art to supply the solid organic material of '864 into the vaporization source by using a rotating drum as taught by Peng et al. in order to reap the benefits discussed above.

Claims 10 – 12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over '864 in view of Dahmen et al. (6,660,328).

The '864 reference teaches all the limitations of **Claims 10 – 12, 14, and 15** as set forth above, except for a method wherein the solid organic material being vaporized comprises at least two organic components. Dahmen et al. teaches that it is often desirable to have multicomponent precursors delivered to the deposition chamber (column 1 lines 55-63) and that using multiple evaporators complicates the control and understanding of the deposition process. Accordingly it is desirable to use a single evaporator to vaporize the solid precursors. Dahmen teaches a method for delivering the solid precursors into the single evaporator that simple in design, relatively inexpeinsive and allows for a high degree of reproducibility (column 2 lines 46-54). Accordingly, it would have been obvious to one of ordinary skill in the art to modify '864

for use with multicomponent precursors as suggested by Dahmen with an expectation that the above listed benefits would be obtained by using the system of Dahmen et al.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over '864 in view of Dahmen et al. in further view of Grant et al. (US 2003/0116091 A1).

The combination of '864 in view of Dahmen et al. teaches all the limitations of **Claim 16** as set forth above, except for a method further comprising providing the claimed cooling base block (i.e., with a liquid between the cooling base block and the solid organic material to provide thermal contact and a vapor tight seal) surrounding the solid organic material. However, such a limitation would have been obvious based on the teachings of Grant et al. (see above).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard E. Abramowitz whose telephone number is 571-272-8557. The examiner can normally be reached on monday-friday 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HEA/

HEA

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER